WRITING INSTRUMENT WITH PIVOTABLE TIP

BACKGROUND OF THE INVENTION

#12

1. FIELD OF THE INVENTION

[0001] The invention relates to writing instruments which are ergonomically adapted to a user's hand posture. The term "writing instruments" is understood to comprise all writing instruments which are adapted to be handled and transported, i.e., which are used by a user as a ball-point pen, roller ball, felt pen or fountain pen. Writing ~~; writing~~ instruments with ink devices or refill cartridges are also comprised.

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2. PRIOR ART

[0002] Many decades ago, efforts were made to provide the tip shape of a writing instrument at the front end of a shaft with a shape tapered towards the front end and to simultaneously incline the tip in relation to the axis of the writing shaft; ~~,~~ compare the old documents FR 1,032,122 A (Segal/Flicker), FR 2,151,240 A (Droubay) or the old German document DE 871 258 C (Riepe-Werk).

[0003] Only in recent years, the concept has been taken up again to improve the idea of an inclined writing tip with regard to industrial engineering, said obviously outdated idea having disappeared from the catalogue of ideas of the manufacturers of writing instruments, see for example documents WO 98/13216 A1 (Senator/Vial) or WO 97/22482 A1 (Gilette). Whereas the last mentioned WO-document relates to a tip design as described in the first mentioned FR-document, namely designing the front

end as a double curvature of a tip device tapered towards the front to obtain an orientation directed away from the writing surface on one hand, and on the other hand, very close to said tip device, an orientation directed towards said writing surface again, the last but one WO-document by Vial proposed to provide a writing tip inclined in one direction only, an elongated design of a front end being selected as an inclined or "asymmetrical" cone at the front shaft end. Such a design permits to improve the control by the user who has a better view of the writing end of the writing instrument due to the slim elongated tip.

[0004] The modernization in the field of technical engineering according to the preceding paragraph concerned a stationary tip inclination. Already many years ago, an adjustable tip arrangement according to DE 801,614 (dating 1951, Ganter) was proposed in which a ball or disk joint relative to a schematically indicated tip was provided, said tip having been mounted at a shaft with a nut (designated d there) after adjusting said ball-disc joint. Still earlier, in 1928, a writing instrument was proposed in US 1,687,647 (Garvey), said writing instrument permitting a very closely limited tip inclination, oriented at an axially arranged "rigid tip holder 10" as described therein and releasing the flow of a writing medium upon being slightly bent. Upon bending, the user adjusts the rate of flow of the writing medium to generate thick and thin lines by correspondingly pressing on the tip (compare page 2, lines 38 to 52 of said document). Finally in 1971, it was proposed to provide a tube arrangement with a disc joint at the front end and with a tip, said tip being adapted pivotable relative to an axis of said tube, compare US 3,554,660 (Wood). According to this document, a disc-shaped joint

(designated 9,10 in figure 2 of said document) is axially offset and laterally offset with respect to a pivoting plane (3-3 therein).

[0005] Based on the above-mentioned prior art, it is an object of the invention to provide writing instruments having a tip device tapered towards the front end with an ergonomic design and to adapt the posture of different users' hands better to said writing instrument, said posture as well as the handwriting of the users mostly substantially differing from one another, particularly to improve the operation of adjustment of the inclination at the writing instrument.

[0006] Said object is realized according to the invention by providing a tip device adapted to be adjusted in its inclination relative to an axis of a writing shaft and by an adjusting means ~~(claim 1, 15)~~ actuated by the user himself, said tip device maintaining its changed position after said adjustment or being directly adjustable again by said adjusting means. Thus, it is up to the user to control or adjust an inclination of the tip of said elongated tip device at the front shaft end such that it is suitable and agreeable to him.

[0007] Said adjustability comprises a single adjustment and a change, an adjusted and changed position of a cone axis of a substantially conical tip device being changed relative to an axis of a writing shaft. A variation range between 0° and 20°, particularly around 10° to 15° was found to be sufficient for most hand postures of the different users.

[0008] Thus, a writing instrument according to the invention is operable in a straight position, in which the two axes (a tip axis and a writing shaft axis) are substantially

congruent, and also in an inclined (tilted or pivoted) position, in which the tip with its axis is changed relative to the shaft axis.

[0009] A returning force, moving said tip from its changed inclined position back to a straight position, may be obtained by providing an elastic portion of a refilling device or cartridge arranged in said shaft axis or a spring means applying a force component on said tip device, such that a torque around a bearing position of said tip device at the shaft is generated, said torque urging said tip device back into its basic position ~~(claims 3,4,9)~~.

[0010] The adjusting movement which extends in a plane comprising the main axis of said writing shaft and the cone axis of said tip device may be controlled with the help of a backwards facing portion of said shaft ~~(claim 2,14,18)~~.

[0011] A control from the rear is effected by a terminal part provided at a shaft end, said terminal part being rotatable. A rotation changes an axial position of said refilling device (axially extending cartridge) over which a longitudinal movement and a force are applied on said tip device located at the front shaft end. A movement of said cartridge towards the front, even by a relatively small rate, changes the inclination of said tapered head, a shoulder of said cartridge device being coupled to the rear portion of said head, particularly directly contacting or permanently contacting said portion in the form of a contour control.

[0012] Alternatively, a control is not only provided by employing said terminal part, but also by a control ring arranged close to said pivotable head, said control ring being arranged around said shaft and accessible to the user for effecting said control.

[0013] In both alternatives, a change of the tip inclination is effected from the terminal part ~~(claim 2)~~. Said change starts out from the rear part of the writing instrument predetermining said change of said tip device (of a substantially cone-shaped front end of a shaft) either directly or indirectly. Said tip inclination is changed "starting out from said terminal part", depending on the concrete embodiment to which said abstract principle is applied, a writing instrument having a push button, a writing instrument having a closed end and a non-retractable refilling or cartridge means, or a writing instrument changing the position of its refilling device by operations other than axial operations. When an adjusting means is provided close to said terminal part, said adjusting means changes the inclination of the tip directly over said refilling or cartridge means, or at least predetermines said inclination (the pivot angle), when the then predetermined tip inclination is adjusted by retracting the front portion of said cartridge device upon using said writing instrument. When said adjusting means is located closer to the front, e. g., close to said tip device, said terminal part is displaced further to the front in relation to said tip device by changing the length of said shaft (in case of a two-piece shaft) or of the entire writing instrument ~~(claim 23)~~, so that the refilling device located in said shaft is also displaced further towards the front end. Thus, said tip inclination is changed starting out from said terminal part, or it is at least predetermined from said terminal part. An adjustment is made indirectly with the help of the remaining sleeve portion of said shaft between an adjusting means displaced towards the front end and said terminal part.

[0014] Said adjusting means may have a sleeve-shaped structure and may be connected with at least one thread portion to the front or to the rear shaft part – in case of a divided shaft -, the distance of said connection being variable.

[0015] The preceding ideas may be combined optionally, e. g. an adjusting sleeve ~~(claim 6b,22)~~ close to a pivotable tip device and a writing instrument with a closed rear terminal part; the same with a push button provided at the terminal part, for operating a refilling device and releasing said refilling device (writing position/retracted position); an adjusting means ~~(claim 6a,22)~~ located at the terminal part comprising a separate push button for moving said refilling device in a writing position or in a retracted position; the same with a writing utensil comprising a closed terminal part.

[0016] Advantageously, an axial pre-tensioning is used ~~(claim 21)~~, said pre-tensioning being applied on said refilling device over a spring means, mostly a cylinder spring. On one side, said spring means is supported at said writing instrument, on the other side it contacts said refilling device. When said axial spring is located in the front portion of said refilling device, it contacts said pivotable tip device and urges said refilling device backwards against a closed shaft end or against a push button for axially moving said refilling device against said spring force. Thus, a coupling of said refilling device and said tip device ~~(claim 16,20)~~ may be neutralized by spacing a shoulder of said refilling device from said contacting position at the backwards facing end portion of said tip device. When said spring means is located at the rear end portion of said shaft, it urges said refilling device towards the front, the term "urging" being equivalent to an axial pre-tensioning. The last mentioned embodiment of use may also be applied with a writing

instrument with refilling cartridge, said instrument having a closed shaft end or a terminal push button part.

[0017] Said spring means may have a double function, namely pre-tensioning said refilling device with respect to a push button means, and a follow-up function of said refilling device when changing the inclination of said tip device upon influencing said writing instrument over an adjusting mechanism and said adjusting mechanism effecting said change of said tip inclination "(directly or indirectly) starting out from said terminal part".

[0018] A coupling portion of said refilling device ~~(claim 16)~~ with the rear portion of said tip device is laterally offset in relation to a bearing portion, at which said tip device is supported to be pivotable ~~(claim 5,8)~~.

[0019] For improving a guiding in a pivoting plane, said tip device may be guided on two sides extending in parallel with respect to said plane, said guiding being effected from said shaft by protrusions extending towards the front ~~(claim 7)~~. Preferably, said tip device is flattened to provide a larger contact surface at said protrusions.

[0020] A leaf spring additionally provided at the rear end of said tip device, which spring may be located on the opposite side of the described bearing, provides an increased dynamic effect upon pivoting said tip device to be more inclined, said dynamic effect resulting from a contact of said leaf spring with the inner shaft wall. Thereby, a returning torque is achieved even when no refilling device with elastic portion is provided, so that a writing instrument not having a refilling device also has a tip with a substantially straight orientation, in which writing instrument a refilling device may simply be inserted

from the rear, said refilling device being controllable itself in its longitudinal movement by said terminal part and releasing an inclination movement of said tip over the described contour control.

[0021] When an integral arrangement comprising a tip tapered towards its front end and a shaft is used, said bearing may be provided by an elastically flexible transition, whereas in the remaining portion, said tip is uncovered from said shaft and variable with respect to its inclination; in this case, said elastic transition constitutes said bearing position permitting said inclination movement; e. g. a thin hinge or plastics hinge joint.

[0022] A control is not only possible (starting out) from said shaft, it may also be effected directly over a control ring, particularly close to a pivotable head, said control ring being arranged around said shaft and accessible to the user for effecting said control ~~(claim 1)~~.

[0023] When a control is possible both from said shaft and also directly at said pivotable head, an adjusting means located further in the course of said gripping shaft may be used, when a corresponding coupling possibility to said tip exists. When said adjusting means is located at said tip, it may directly act upon said pirovtable tip. When said adjusting means is located at the terminal part of said shaft, it may act upon said tip over a refilling device. Therefore, by using a corresponding, e. g. inside sleeve element, it is also possible to use a movement component of the middle of said writing instrument or of each other position between the front and the rear end for providing an adjusting means which adjusts said tip device.

[0024] An adjusting means is provided at an axial distance from the front end of said shaft ~~(claim 1,15,27)~~.

[0025] Both, an adjustment against a spring force ~~(claim 4 or 9)~~, and also a direct adjustment, by simply displacing or rotating an adjusting means located at said shaft, are possible.

[0026] When spring forces are used, a coordination of at least two different spring forces is recommended, also taking into account a writing pressure usually resulting from writing and acting on said refilling device. A first torque existing in a direction of inclination may at least be compensated by an increased returning torque ~~(claim 4,7)~~, an inclination angle adjusted to be stationary by a mechanically adjustable coupling, particularly a contact ~~(claim 20)~~, being maintained, when forces caused by writing act upon said tip device.

[0027] A spring means at the rear end may compensate a writing force applied over a refilling device, said force usually being between 100 g and 150 g, such that said refilling device is not offset in an axial direction; simultaneously said spring force allows said refilling device to be advanced upon pivoting said tip device, so that the writing end continues to protrude out of said tip device. When a dynamic component is additionally applied for returning said protruding tip, either by a flexible portion of a part of said refilling device or by an additional spring means in the sense of a leaf spring, or by both said means, the entire dynamic component for a return in the sense of a returning torque has to be oriented such ~~(claim 24)~~ that the total returning force is higher than a force in an axial forward direction of a spring supported at the rear, said force in turn

having to correspond to a force normally resulting from a writing pressure. Thus, all three states of a writing instrument may optimally be combined, a writing position and a writing process as well as a returning of the inclination angle, as well as a guarantee that upon an increasing inclination, said tip continues to protrude out of said tip device in the same manner.

[0028] When using a spring arranged at the front end, which spring urges said refilling device back and is adapted to space said tip device from a control shoulder portion of said refilling device by applying an elastic tension force, a dimensioning basis may also be given here ~~(claim 25)~~. Said elastic pre-tensioning between the two components described resulting in that said tip device is urged in a more inclined position, a returning spring at an edge of said tip device has to take care that said torque is at least compensated and that an additional torque is applied, permitting a return of said tip device, when a smaller inclination is desired by operating said adjusting means at said shaft.

[0029] A non-interaction of a change of said refilling device and an adjustment and maintenance of a certain inclination of said tip device is particularly preferred. Thus, a user may adjust his preferred inclination angle which he does not loose even when providing said writing instrument with another or a new refilling device. For such an embodiment, a combination of an adjusting means at a terminal shaft part in connection with a divided housing shaft is advantageous. A control at said terminal part is independent of a shaft being divided by unscrewing for changing said refilling device.

Both functions of said writing instrument are accomplished simultaneously and are independent of each other.

BRIEF DESCRIPTION OF THE DRAWINGS

[0030] The claimed invention is described and supplemented by embodiments **and examples, certain of which are specifically shown in the drawings, wherein:** —

[0031] Figures 1**a through 1c, which for convenience are sometimes collectively referenced herein as "figures 1,"** comprise three illustrations showing an embodiment of a writing instrument having a pivotable tip device, which in this embodiment is designed as a cone 10.

[0032] Figures 2**a and 2b (collectively "figures 2")** show in two sectional illustrations the embodiment of figure**s** 1, with a conical tip device being in a straight position and an conical tip device being inclined by engagement of a refilling device 40 at a rear control portion 9 of said conical tip, said tip being pivotable at a joint 13, 14, 23.

[0033] Figures 3**a to 3d ("figures 3")** comprise four illustrations ~~A to D~~, showing the design of a conical tip device 10 comprising control portions 9, 9a, 9b at the backward facing portion as well as further elements for improving the functionality of the variable inclination of said tip device 10.

[0034] Figures 4**a to 4d ("figures 4")** comprise four illustrations ~~A to D~~, showing the design of a shaft 20 in a sectional view in two sections offset by 90° as well as in two axial views.

[0035] Figures 5**a to 5d ("figures 5")** illustrate a number of embodiments ~~A to D~~ for mounting a terminal part 50 at a rear shaft end 20.

[0036] Figures 6**a to 6c ("figures 6")** show three illustrations of a writing instrument with a divided shaft 64 comprising a front portion 64' and a rear portion 64" being connected to each other over a sleeve 63 located outside thereof and being provided with a distance 25 controllable over said sleeve and in an axial direction. The writing instrument according to figures 6 is closed at the rear shaft end.

[0037] Figures 7**a to 7d ("figures 7")** comprise four illustrations showing a retracted position and an extended position of a writing instrument having a movable refilling device 40, two different positions of a pivotable tip device 10 with a refilling device extended in a writing position being also shown.

[0038] Figures 8**a and 8b ("figures 8")** shows two illustrations of a writing instrument without a push button portion and having a closed end 20b comprising an extended leaf spring means 17, said leaf spring, in connection with a part 20c of a shaft 20, serving for varying the inclination of a tip device 10.

DETAILED DESCRIPTION

[0039] Figure 1a shows writing instrument illustrated in a top plan view, which writing instrument in a side view according to figure 1b has a straight orientation, and in a side view according to figure 1c has an inclined tip device 10, said inclination being at an angle α relative to a shaft 20, in this embodiment shown at substantially 15°. Two

marked axes 100 and 101 serve for orientation, said first mentioned axis being a main axis of said shaft 20, also constituting an axis of said writing instrument, said last mentioned axis being an axis of said tip device 10, which in the inclined illustration, in which said two axes include an angle of 15°, has changed its inclination in a paper plane. Said inclination is variable between 0° and α_{max}.

[0040] At the front end of said conical tip device 10, which has an opening 29 at said front end, a writing tip 30 protrudes, said writing tip changing its inclination simultaneously with the inclination of said cone 10.

[0041] As far as the functionality of the writing instrument is concerned, reference is made to figures 5 with regard to the terminal part 50 of figure 1. As far as a more exact design of said shaft 20 also with its front guiding protrusions 21, 22 is concerned, reference is made to figures 4. Figures 3 show a more detailed illustration of said tip device 10. The operation or the pivoting possibilities, particularly the application of returning forces on said conical tip result from figures 2.

[0042] Figures 2 illustrate the writing instrument of figure 1 in a sectional view, however, in this embodiment a refilling device 40 being provided in said shaft 20, said refilling device being supported at the backwards facing end at said terminal part 50, and comprising a writing tip 30 at the front end, a channel portion 41, 42, which has a considerably smaller diameter, leading into a step or shoulder portion 43, having a diameter corresponding to a so-called "high capacity" or "large volume" ink device or cartridge for storing a writing liquid. The embodiment illustrated thus shows a roller ball

or a ball point pen, however, it may have the same design for corresponding other shapes of refilling devices, such as felt tip pens or pens.

[0043] Supposed that said ink device 40 moves in a longitudinal direction x, in parallel to said main axis 100, and over a small distance in a forward and a backward direction, said front step or shoulder 43, as an annular surface at a contact position with the rear end of said conical tip 10 transfers a pivoting movement on said tip, when said tip is arranged to be inclinable, tiltable or pivotable at a bearing L offset with respect to said axis 100. Said bearing comprises two opposite protrusions, one being located at the front end of said shaft and at the inside thereof, the other being arranged at an outer and backwards facing end of said conical tip, so that said two protrusions form a bearing **portion** ~~protion~~ L or 23 for a conical tip device 10 being inserted from the rear, around which bearing said tip device 10 is pivotable.

[0044] Said pivoting movement is initiated by the described longitudinal adjustment of said ink device 40. Said shoulder 43 is in contact with a contour control portion 9 comprising two webs at the backward facing end of said tip device, which webs may have a semicircular or a straight shape. In a direction perpendicular to said main axis 100, said webs have a spherical shape or comprise two web pieces, each of which having a straight extension, but at an angle differing from 180°. Said inclined extension 9a, 9b corresponds to a substantially desired maximum inclination of said cone 10, so that an angle β illustrated on figure 3 substantially corresponds to said angle α_{max} of figure 1.

[0045] Upon inclining said tip, an elastic portion 42 of said refilling device bends out under application of a returning force, so that, upon a returning movement of said refilling device, said tip reduces its inclination achieved before. Additionally, a leaf spring 17 may be inserted into a recess 16 in said tip device, said leaf spring starting to apply returning forces relative to the inner wall of said shaft 20 upon an increasing inclination.

[0046] Two laterally protruding limiting means 12 are provided, said means being offset by ±90° in relation to said bearing portion 23 and providing a limiting position of said tip device 10 at further limiting means 21a, 22a, located correspondingly inside said shaft and at a forward facing end thereof, said limiting means 21a, 22a being visible on figure 4. When said conical tip device 10 reaches its maximum inclination, said two noses contact said protrusions 21, 22a and limit a further pivoting movement; at said state of inclination, the shoulder 43 of said refilling device 40 is also in a plane-parallel contact with said portion 9b of said inclined contour control 9.

[0047] For improving the function of said bearing 23, 14, 13, said conical tip device 10 is provided with a flattened portion 15 in the area of said bearing portion, said flattened portion having a heraldic- or blazon-shaped design and an edge oriented towards the rear and having a substantially straight extension, from which edge said protrusion 13 at said conical tip 10 originates.

[0048] A lateral control of said cone 10 is improved, when two protruding guiding plates are arranged in an axial direction 100 at two sides offset by 180°, each offset in parallel with respect to a plane in which the inclination movement is effected. They act together with corresponding flattened portions 11 at said tip device 10 for obtaining a bilateral

guiding on the left and on the right of said bearing portion 23. Said plates protrude in a semi-oval shape from said shaft 20 and are visible on figure 4 as plate pieces 21 22. The corresponding flattened portions 11 at said tip device 10 are illustrated in figure 3.

[0049] A number of embodiments for realizing a terminal part 50 are accessible to the expert on figure 5. An embodiment of realizing a longitudinal movement x of a refilling device 40 is to provide said terminal part 50 as a stopper or plug which is guided in a thread by one or two opposite spherical protrusions 51, so that a rotary movement of said plug or stopper 50 effects its longitudinal movement. Said longitudinal movement is transferred to said refilling device 40, which for its part changes the inclination of the tip over said contour control 9 and maintains said inclination in said changed position, thus controls it.

[0050] Alternative embodiments may be realized by providing said plug or stopper 50 with an annular recess 54a in a cylindrical portion 50a, in which recess an O-ring 54 is located, which O-ring slightly protrudes in a radial direction and engages in said thread.

[0051] A further – not illustrated – alternative is to provide said terminal part 50, which is only adapted to be rotatable at said rear shaft end, with a surface inclined towards the front, said surface being adapted to transfer longitudinal forces to said refilling device 40, upon being rotated and contacting said refilling device 40.

[0052] When said shaft has an integral design, said tip device, for assembling purposes, may be inserted into said shaft 20 from the back side thereof. When said shaft is divided in two parts – said embodiment being described further below , the dividing position

offers itself as an inserting position, when said two shaft parts are detached from each other and separated.

[0053] A terminal part according to figure 5 is provided with protrusions 51, which, according to illustration C may have a line-shape. They may also be locked in corresponding lock-in positions 52 at the inside of said shaft for fixing predetermined positions upon a rotary movement, said positions corresponding to defined angle positions α of said tip device. When said protrusions are designed to have a substantially punctual shape, they are suited as a thread engagement. Both elements may also be combined, said combined application being symbolically represented in illustration D, according to which only said protrusions 51 in said thread and only said lock-in position 52 (with protrusion 51) without said thread, respectively, are also realizable.

[0054] A stripe-shaped web 50 protrudes in an outward direction, at which web the rotary movement for said terminal part 50 is effected.

[0055] The force of a spring 17 according to figure 3 has to be adjusted such that the returning force is sufficient, if necessary in combination with a compressive stress of an elastic portion 42 of a channel section at the front end of said refilling device. A contact position of said leaf spring 17 should be offset to the rear, in relation to a bearing position L, for allowing a torque to be applied with a lever arm on a tip device 10, even when said tip device 10 is bent out or inclined.

[0056] **Figures** ~~Figures~~ 6 **illustrate** ~~illustrates~~ a divided writing instrument having a shaft 64 consisting of a front portion 64' and a rear portion 64". Said two shaft portions are

coupled to each other by a tooth-shaped engaging means comprising a web **122** ~~22~~ and a groove **121** ~~21~~, said coupling being adapted such that they are not able to rotate relative to each other, but are variable in an axial direction with respect to their distance from each other, by forming a varying interspace 25. A sleeve structure 63 is provided to have such a length that it extends over both edge portions on both sides of said interspace 25 and that it comprises a thread portion on at least one of said two sides 63a cooperating with a corresponding counter-thread 62a or 64a at a respective shaft part 64' and 64". One of said thread portions may be dropped and be replaced by a guiding means only providing a rotary movement at an axial immobility on said one shaft part, whereas the other shaft part is adapted to be varied in its distance by said thread connection 63a/64a by varying a gap 65. When said distance changes, the length of said shaft and said writing instrument, respectively, changes, and when a refilling device 65 is inserted, also the relative position of said refilling device changes relative to said bearing position L, causing a pivoting movement of a head 10 having an opening 10a, through which opening said tip 65a protrudes at a front channel portion 65b. A step 65c, comprising a shoulder means 66d, provides a transition from a front portion of said refilling device to a reservoir of said refilling device, and provides a contact to said contour control 9 which was described before.

[0057] Also a leaf spring 17 is also present for providing a returning pivoting torque for said tip 10, when an elastic portion 65e of said refilling device is not sufficient for applying said returning force. However, said returning pivoting torque may only have an effect when a smaller gap 25 of figure 6c is enlarged again to a normal gap 25 according to figure 6b.

[0058] Said control sleeve may be arranged at any position of said writing instrument, upon correspondingly displacing said gap or slot 25. Figure 6a may also be provided with a push button means at the rear end of said shaft, so that the refilling device is adapted to be retractable and extendable.

[0059] When two pairs of threads 63a/62a and 63a/64a are used on both sides of said gap or slot 25, they are provided with an opposite pitch, and said sleeve part 63 has a corresponding female thread.

[0060] Figures 7 illustrate a writing instrument, showing two retracted positions of said refilling device in figures 7a, c and two extended positions according to figure 7b, 7d. A push button portion 35 changes the position of said refilling device, the design of the tip device and the bearing L being similar to that described before with reference to the figures. Additionally, an axial spring is arranged, being in contact with the front portion of a tapered channel of the tip opening and also with a shoulder according to 66c of figure 6b, for spacing said shoulder 43 from said contour control 9 in a retracted position.

[0061] Said shaft has a short rear portion 33 carrying a push button means 34, said rear portion being screwed with a thread into a rear portion 20a of the remaining shaft and being variable in its position by a screwing movement. A distance x1 is shown, said distance being changeable by a screwing movement to a distance x2 of figure 7c. When the push button is actuated at an adjusted distance x1, said shoulder 43 just contacts said contour control 9, so that no inclination of the tip is effected. Starting a rotary movement of said portion 33 now, changes the inclination of said tip 10. A change of said distance to x2 may also be preselected before actuating said push button, so that

the tip inclination then desired is effected upon actuating said push button according to figure 7d, in the course of actuating said push button and advancing said refilling device and coupling said shoulder 43 with said contour control 9.

[0062] An instantaneous or momentary pivot point and said bearing L are provided as described above.

[0063] Said thread connection at the rear portion may also be displaced further to the front, being at least at a distance from the front end of said shaft. A guiding of inner webs between said parts 34, 33 and the push button control 35 are designed like a usual ball point pen mechanism. By actuating said push button 35, said inner part 34 is locked in different axial positions.

[0064] Figures 8 comprise two illustrations of a writing instrument having a closed end 20b, an axial position of a rear shaft part 20" being changed relative to a front shaft part 20', said change being effected by a connection having a thread pitch 20w. Said shaft is divided in two parts, the dividing position according to this embodiment being located at a front third part, but it may also be connected to be rotatable at another position, particularly at a position closer to the tip end 10. Similar to adjusting a distance x1, x2, a distance y1, y2 is adjustable in this embodiment for controlling a tip inclination 10 from a shaft. A bearing L is the pivoting point of said tip 10. A control effected over said coupling portion 9 and a shoulder 34 by a counter torque applied by a leaf spring 17 and an elastic channel part 42 of said refilling device allow a returning movement of said tip device 10 upon increasing a distance 27.

[0065] According to this embodiment, a front end 20c of a rear shaft part 20" is adapted to contact an extended leaf spring 17', said leaf spring closely contacting said shaft and its inner wall and extending in backward direction. Advancing said end 20c causes a direct mechanical coupling of a force, said force initiating a tip inclination 10 relative to said bearing portion L with the corresponding lever arm. Said lever arm being twice as long in relation to effecting a tip inclination by said axis 100 of figure 1, an increased length of stroke y1 is provided, which is substantially y1-y2=2x1.

[0066] Said double stroke of said refilling device 65 for achieving the same angle of said tip device 10 is compensated by a spring 41b between said closed end 20b and an end of said refilling device 65. Said spring urges said refilling device 65 further to the front, when said distance 27 is increased, thus maintaining the contact or the coupling between said shoulder 43 and said coupling portion 9. A pressure on the refilling device caused by writing is absorbed by said spring 41b, such that practically no axial displacement occurs and the refilling device protrudes out of said tip device at an equal length, independent of the writing pressure and the angle position. A compensation of the writing force thus effected is over-compensated by returning moments of said portion 42 and said spring part 17 with said extension 17', so that an increase of said distance y1 by said increased returning moments also causes a reduction of said inclination angle 10.

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